Social media usage by the anesthesiology residents for educational purposes during the COVID-19 pandemic era

Eurasian Clinical and Analytical Medicine Original Research

Socıal medıa usage of the anesthesıology resıdents ın pandemıc era

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Abstract

Aim: After the declaration of the pandemic by the World Health Organization on March 11, 2020, COVID-19 has caused a far-reaching change that is difficult to adapt to in formal medical education. In the educational process, it may have led the anesthesiology residents to complete their deficiencies with alternative learning options. The aim of this study was to investigate the change in social media usage habits of anesthesia residents for academic and educational purposes during the pandemic era.

Material and Methods: This cross-sectional study was conducted from April to May 2020 with voluntary participation of anesthesiology residents using an online self-administered Google forms software-based questionnaire consisting of twenty questions.

Results: There was an increase in the use of social media for academic development in 39.7% of anesthesiologists (Group 1), no change in 45.5% (Group2), and a decrease in 14.8% (Group 3) during the pandemic period compared to the pre-pandemic period. In the comparison between the groups, those who have heard the announcements of national and international electronic scientific meetings from social media (p=0.016) were found to be significantly higher in Group 1. Also, the number of participants whose frequency of attending electronic scientific meetings was significantly higher in Group 1(p=0.005). The rate of Instagram and Youtube usage was also found to be significantly higher in Group 1 (p= 0.046 and p<0.001, respectively).

Discussion: During the pandemic period, medical education and residency training programs through social media have enabled many people who are against social media to get closer to social media and use it effectively.

Keywords

Social Media, Anesthesiology Residents, Survey

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Introduction

After the declaration of the pandemic by the World Health Organization on March 11, 2020, COVID-19 has caused a far-reaching change that is difficult to adapt to in formal medical education. Anesthesiology was the prominent speciality to struggle with the disease and may have been affected the most among the other specialties [1].

It is no secret that the pandemic has negatively affected medical education due to various factors. One of them may be that it has increased the already high levels of problems such as burnout, distress and depression of anesthesia residents [2]. In addition, the factors that disrupted the functioning of the curriculum affected all anesthesiology residents. Postponement of elective surgeries has reduced bedside education opportunities. Prioritizing the intensive care service prevented other educational rotations. Due to social distance, classroom education and classic examinations were canceled and inexperienced online options were started [3]. This disruption in the educational process may have led the anesthesiology residents to complete their deficiencies with alternative learning options.

The expanding literature has long highlighted the increasing use, advantages, and disadvantages of social media for academic and educational purposes [4,5]. Advances in internet technology have allowed individuals to create their own video, audio and written content. This change also allowed information and ideas to spread easily whether correct or not. Although the effect of social media on medical education is not a new phenomenon, it is deserved to be reinterpreted in the pandemic era [6].

This national questionnaire-based study aims to investigate the changes in the attitudes and behaviors of anesthesia residents regarding the use of social media for academic and educational purposes during the pandemic era.

Material and Methods

This cross-sectional study was conducted among the anesthesiology residents of Turkiye between April and May 2021, using an anonymous self-administered questionnaire in Turkish.

Following the approval of the Ministry of Health Scientific Research Platform (2021-03-23T21_41_28) and the local ethics committee (Ethical Approval Date: 14/04/2021, Ethics Committee number: E1-21-1710), a cross-sectional online survey was conducted to anesthesia residents. A questionnaire consisting of 20 questions was created using Google Forms (available at: https://docs.google.com/forms/d/e/1FAIpQLSfS5eQTN6RhAVGSczvK3HrH7uzilx8rWaQNmYMDuByB15Suvg/viewform?vc=0&c=0&w=1&flr=0), the links to the social network application were sent to the participants via WhatsApp (Figure 1).

The questionnaire was prepared in a certain system using the multiple-choice question technique. The question choices were treated in accordance with the principle of impartiality without directing the answers of the participants. After obtaining informed consent, the participants were asked to fill out the questionnaire without receiving specific information such as name, surname, and the name of the institution they worked for. Information about the purpose and nature of the survey was given to the participants in the introduction. A total of 20 questions were asked, two of which were open-ended and eighteen were closed-ended.

The study questionnaire consisted of three parts and 20 questions. In Part 1, there were six questions (age, gender, institution type, length of experience, foreign language level) collecting the demographic information and foreign language skills of the respondents. In the second part, which consists of four items, the scientific activities carried out in the field of education in the institution where they received education and how the pandemic period affected these activities were examined. Part 3, which consists of ten items, examined the academic use of social media by the participants, the frequency of their use of social media during the pandemic period and the effects of the use of social media on their academic life during the pandemic period.

Statistical Analysis

The IBM SPSS 20 statistical package program was used for data analysis. For all statistics, the significance limit was set at $p<0.05$. Continuous variables were expressed as means, standard deviation, median, minimum, and maximum values in descriptive statistics. Categorical data were expressed as number and percentages. Chi-square and Fisher's Exact tests were used in inferential statistics for group comparisons (in cross tables).

Results

Out of the 209 participants, 70 were enrolled from university hospitals, 139 from educational and research hospitals. The mean age of the residents was 28.75±2.76 years, with a minimum age of 24 years and a maximum age of 44.

Self-appraisals of the residents related to a foreign language indicated that 49.8% of the participants only understand the subject but not the details of a text they read, and 54.1% of the participants only partially understand the speech of the lecturers at foreign-language scientific meetings. Other demographic characteristics of the participants are shown in Table 1.

According to the residents' self-appraisals of the frequency of social media use before and during the pandemic, those whose frequency of use increased were classified as Group 1 [n=83 (39.7%)], those whose frequency of use decreased as Group 2 [n=31(14.8%)], and those who did not change as Group 3 [n=95(45.5%)], and a statistical evaluation was made between these groups. There was no significant difference between the groups in terms of demographic characteristics and foreign language levels of the participants.

The majority of the participants declared that the frequency of training meetings in their institutions was once a week [n=121(58.2%)] or twice a week [n=70(33.5%)] before the pandemic. Participants stated their frequency of attending institutional training meetings before the pandemic, respectively as "all meetings" [n=63(30.1%)], "attended generally all meetings" [n=132(60.2%)], "occasionally" [n=8(3.8%)] and, "never" [n=6(2.9%)]. When asked to evaluate the change in the frequency of institutional training meetings during the pandemic period compared to the pre-pandemic era, n=7(3.3%) of the participants stated that they increased during the pandemic period, n=142(67.9%) stated that they decreased, n=38 (18.2%) stated that they did not change, and n=22 (10.5%) stated that no meetings were held.

Participants stated a change in the level of their attendance at institutional training meetings during the pandemic compared to the pre-pandemic era, respectively, as "increased" [n=4(1.9%)], "decreased" [n=92(44%)], "did not change" [n=95(45.5%)] and, "never" [n=17(8.1%)]. When the participants compared the pandemic period with the pre-pandemic period, 127 participants (60.8%) stated that the time they devoted to academic purposes and its efficiency had decreased; 6 (2.9%) stated that the effectiveness increased despite the decrease in time; 54 (25.8%) stated that their time increased but was inefficient; 9 (4.3%) stated that both yield and time increased; 12 (5.7%) stated that they were not affected by the conjuncture.

There were no statistical differences between the three groups when comparing the rate of marking different answer options to the questions "How often were the training meetings held in your institution before the pandemic process?", "How often did you attend the training meetings held in your hospital?", " Has the frequency of

the training meetings changed in your institution during the pandemic process" did not differ between the groups. However, the marking rate of the "increased" option to the question "How has your participation in the institutional training meetings changed during the pandemic compared to the pre-pandemic era?" was found to be significantly higher in Group 1 participants than in other groups (p<0.01) (Table 2).

From most to least used social media platform usage for academic and educational purposes were YouTube (53.6%), WhatsApp (52.6), Instagram (44%), Telegram (19.6%), Twitter (14.8%), Researchgate (11%), Facebook (10%) and Linkedin (2.9%), respectively.

The use of Facebook, Twitter, Linkedin, Research Gate, WhatsApp and Telegram for academic purposes related to the field of education was not found to be significant in the intergroup comparison. When the use of Instagram and YouTube was compared between the groups, the rate of using these platforms was found to be significantly higher in Group 1 (p<0.05).

Among the participants, 39.7% answered "increased" to the question "How has your usage rate of social media for academic purposes changed compared to the pre-pandemic period?" question.

Participants stated their academic goals as "to gain experience for practical applications" (58.4%), "following new studies related to my fields of interest" (46.4%), "following and acquiring newly written resource books for my education" (28.7%); when using social media and it was found that the number of participants who gave this answer was significantly higher in Group 1 in the comparison between groups. The rate of "sharing my own studies and experiences" was 4.3%, the rate of "developing my personal relations" was 11%, the rate of "following the congresses and trainings to be held" was 48.3%, and no significant difference was found in the comparison between the groups.

Participants state that they have heard the announcements of national and international electronic scientific meetings with the notice of their institutions [n=102(49.5%)], from social media [n=59(28.6%)] or social relations [27(13.1%)], whereas 18 (8.7%) of them were not aware of scientific meetings. Eighty one (39.3%) participants declared that the frequency of attending electronic scientific meetings has increased comparing to pre-pandemic scientific meetings, while 59 (28.6%) of them stated that the frequency has decreased or not changed [n=51(24.8%)]. There were 15 residents (7.3%) who stated that they did not attend electronic scientific meetings.

In the comparison between the groups, it was found that the number those who have heard the announcements of national and international electronic scientific meetings from social media (p=0.016) was significantly higher in Group 1. Also, the number of participants whose frequency of attending electronic scientific meetings increased was found to be significantly higher in Group 1(p=0.005).

When evaluating the academic effect of electronic scientific meetings comparing to pre-pandemic scientific meetings, 42 (%20.1) of the participants stated that they attended more meetings and their level of knowledge increased, 83 (39.7%) of them stated that they attended more meetings, but it was not beneficial, 13 (6.2%) of them attended fewer meetings, 48 (23%) of them did not attend any meetings.

Table 1. Characteristics of the participants.

	Mean ± SD Median (Min-Max)	
Age (year)	28.75±2.76	
	28 (24-44)	
	n	**%**
Gender		
Female	118	56.5
Male	91	43.5
Resident Seniority		
0-1 years	63	30.1
1-2 years	47	22.5
2-3 years	28	13.4
3-4 years	35	16.7
4-5 years	36	17.2
Institution type of residency program		
Education and Research Hospital	139	66.5
University Hospital	70	33.5
How would you rate your level of reading and understanding foreign language sources? (Q5)		
a. I totally understand	18	8.6
b. I understand with the help of a dictionary	80	38.3
c. I understand the topic but I cannot understand the details	104	49.8
d. I do not understand anything	7	3.3
How would you rate your level of understanding and speaking at scientific meetings in a foreign language? (Q6)		
a. I fully understand what I am listening to and can ask questions about the topic.	13	6.2
b. I understand what I am listening but I cannot express myself	52	24.9
c. I partially understand what I am listening	113	54.1
d. I do not understand anything	31	14.8

Table 2. Comparison of Group 1 (increased social media usage in the pandemic era), Group 2 (decreased social media usage in the pandemic era) and Group 3 (no change in social media usage in pandemic era) in terms of education features of the participants in the pre-pandemic and pandemic period

	Group 1	Group 2	Group 3	Total n	Test statics	P value
How often were the training meetings held in the hospital where you were trained before the pandemic? (Q7)						
2 per week	21(%30)	11(%15,7)	38(%54,3)	70(33,5%)	x^2 =5.711	0.427
1 per week	52(%43)	19(%15,7)	50(%41,3)	121(58,2%)		
1 per month	4(%50)	1(%12,5)	3(%37,5)	8(3,8%)		
Not done	5(%55,6)	0(%0)	4(%44,4)	9(4,3%)		
How often did you attend training meetings held at your hospital before the pandemic? (Q8)						
Attend all of them	20(31,7%)	8(12,7%)	35(55,6%)	63(30,1%)	x^2 =5.132	0.495
Usually all	58(43,9%)	20(15,2%)	54(40,9%)	132(63,2%)		
Rarely	3(37,5%)	2(25%)	3(37,5%)	8(3,8%)		
I did not attend meetings	2(33,3%)	1(16,7%)	3(50%)	6(2,9%)		
Has the frequency of training meetings changed in the hospital where you were trained during the Pandemic Period? (Q9)						
Increased	4(57,1%)	0(0%)	3(42,9%)	7(3,3%)	x^2 =5.453	0.468
Decreased	52(36,6%)	26(18,3%)	64(45,1%)	142(67,9%)		
Has not changed	19(50%)	3(7,9%)	16(42,1%)	38(18,2%)		
No meetings were held	8(36,4%)	2(9,1%)	12(54,5%)	22(10,5%)		
During the pandemic period, has your participation in the training meetings held in your hospital changed compared to before? (Q10)						
Increased	3(75%)	0(0%)	1(25%)	4(1,9%)	x^2 =15.445	0.009
Decreased	36(39,1%)	22(23,9%)	34(37%)	92(44%)		
Has not changed	36(37,9%)	6(6,3%)	53(55,8%)	95(45,5%)		
I have never participated	7(41,2%)	3(17,6%)	7(41,2%)	17(8,1%)		

Table 3. Comparison of Group 1 (increased social media usage in the pandemic era), Group 2 (decreased social media usage in the pandemic era) and Group 3 (no change in social media usage in the pandemic era) in terms of the academic features and social media using habits

	Group 1	Group 2	Group 3	Total n	Test statics	P value
What is your academic goal when using social media? (Q14)						
Gain experience for practical applications	64(52,2%)	14(11,5%)	44(36,1%)	122(58,4%)	x^2 =19.901	<0.001
To follow new studies related to my interests	49(50,5%)	19(19,6%)	29(29,9%)	97(46,7%)	x^2 =17.717	<0.001
Sharing my own work and experiences	3(33,3%)	1(11,1%)	5(55,6%)	9(4,3%)	x^2 =0.373	0.897
Improve my personal relationships	9(39,1%)	1(4,3%)	13(56,5%)	23(11%)	x^2 =2.614	0.271
To follow and obtain newly written resource books for my education	32(53,3%)	4(6,7%)	24(40%)	60(28,7%)	x^2 =8.266	0.016
To follow the congresses and trainings to be held	40(39,6%)	12(11,9%)	49(48,5%)	101(48,3%)	x^2 =1.551	0.460
Have you been aware of national and international scientific meetings or trainings held in electronic environment other than your hospital's training program during the pandemic period? (Q15)						
social media	3(52,5%)1	6(10,2%)	22(37,3%)	59(28,6%)	x^2 =15.598	0.016
my social relations	8(29,6%)	1(3,7%)	18(66,7%)	27(13,1%)		
hospital where I was trained.	38(37,3%)	20(19,6%)	44(43,1%)	102(49,5%)		
I was not aware	3(16,7%)	4(22,2%)	11(61,1%)	18(8,7%)		
Compared to meetings such as congresses, panels, and symposiums with active participation in the pre-pandemic period, how has your frequency of attending electronic scientific meetings during the pandemic period changed? (Q16)						
It increased	41(50,6%)	7(8,6%)	33(40,7%)	81(39,3%)	x^2 =18.418	0.005
decreased	18(30,5%)	16(27,1%)	25(42,4%)	59(28,6%)		
has not changed	17(33,3%)	4(7,8%)	30(58,8%)	51(24,8%)		
I do not attend electronic meetings	4(26,7%)	4(26,7%)	7(46,7%)	15(7,3%)		
How did the meetings held in the electronic environment you attended during the pandemic period affect you academically when compared to the meetings you attended in the pre-pandemic period? (Q17)						
I attended more meetings and my academic knowledge increased	21(50%)	1(2,4%)	20(40,7%)	42(20,1%)	x^2 =18.418	0.005
I attended more meetings but it was not very helpful	38(45,8%)	12(14,4%)	33(42,4%)	83(39,7%)		
I attended fewer meetings, but my academic knowledge increased	3(23,1%)	4(30,8%)	6(58,8%)	13(6,2%)		
I attended fewer meetings and it was not very helpful	13(27,1%)	11(22,9%)	24(46,7%)	13(6,2%)		
I did not attend the meetings	21(50%)	1(2,4%)	20(40,7%)	48(23%)		
How has the pandemic period changed your academic interest in non-COVID fields such as general anesthesia, regional anesthesia or algology? (Q18)						
I'm totally concerned with COVID	11(33,3%)	6(18,2%)	16(48,5%)	33(15,8%)	x^2 =13.254	0.031
I was completely concerned with non-COVID issues	5(45,5%)	1(9,1%)	5(45,5%)	11(5,3%)		
I have dealt with both COVID and non-COVID issues.	62(46,3%)	15(11,2%)	57(42,5%)	134(64,1%)		
I was not interested in any	5(16,1%)	9(29%)	17(54,8%)	31(14,8%)		
Has your use of social media been effective in your academic activities during the pandemic period? (Q19)						
yes	66(56,9%)	12(10,3%)	38(32,8%)	116(55,8%)	x^2=33.546	<0.001
no	16(17,4%)	19(20,7%)	57(64%)	92(44,2%)		
How do you evaluate social media in accessing information? (Q20)						
I consider both individual and instutional accounts useful.	50(52,1%)	6(6,2%)	40(41,7%)	96(46,2%)	x^2 =20.968	0.001
I only trust institutional accounts and consider them useful.	10(32,3%)	6(19,4%)	15(48,4%)	31(14,9%)		
I need to confirm the information I have obtained in institutional or individual accounts from the original sources.	23(31,5%)	17(23,3%)	33(45,2%)	73(35,1%)		
I stay away from social media thinking it may contain disinformation	0(0%)	2(25%)	6(75%)	8(3,8%)		

When their academic interest in non-COVID fields such as general anesthesia, regional anesthesia or algology during the pandemic was questioned, 33 (15.8) of the participants stated that they were completely interested in COVID-19, 11 (5.3%) were interested in completely non-covid issues, 134 (64.1%) stated that they were interested in both issues, while 31 (14.8%) stated that they were not interested in any issues.

When asked about the effectiveness of academic social media usage during the pandemic, n=116 (55.5%) of the participants answered "yes". In the comparison between the groups, it was determined that the number of "yes" answers was significantly higher in Group 1 (p<0.001).

Participants evaluated social media in terms of reliability for accessing information as follows: 96 (46.2%) of them found both individual and institutional accounts useful; while 31 (14.9%) of them trusted and found useful only instutional accounts, 73 (35.1%) of them confirmed the information they obtained with original sources, and 8 (3.8%) of them avoided social media because they believed it contains false information (Table 3).

Discussion

In this study, we aimed to investigate the changes in the attitudes and behaviors of anesthesia residents regarding the academic and educational usage of social media during the pandemic period using an internet questionnaire based national survey study. Our study showed that a significant portion (39.7%) of the anesthesiology residents' use of social media increased for academic development, and for 45.5% of them, social media usage has not changed during the pandemic period. In the increase in the use of social media for academic purposes, it is seen that the increase in the frequency of scientific activities, such as e-learning and e-symposium organized in the institutions where the residents receive training, is effective.

Anesthesia residents and specialists are on the front lines during the pandemic period; despite the frequent and tiring rotations of intensive care units, they have managed to continue and even improve their education by using social media for innovation and experience. The institutions where they receive training on this subject should not stop or even increase their scientific activities. Informing them about scientific activities outside the hospital through the necessary announcements was helpful in the training and effective use of social media.

There are many articles published in the literature on the use of social media in education, public health and medical education. The advantages and disadvantages of social media are also discussed in the literature. To our knowledge, our study is the first study to investigate the benefits of social media-based trainings accepted in the field of health education in assistantship processes, especially during the pandemic period when face-to-face training can not be done, and the effects of the use of social media for academic purposes on these residents in their current and future lives, through a questionnaire.

Various studies that support the results of our article can be summarized.

Alsoufi et al. showed in their study, which was conducted in Libya that despite the war, poverty and psychological problems, medical school students were able to continue their education with internet-based e-learning. Of course, in this sense, they showed that the consistent behavior of the state and students is important [7].

D'souza et al. showed that the use of social media is an important point in medical education in the post-COVID period. In this article, the authors also mentioned the advantages of social media such as access to innovations and professional counselors, even if social media has disadvantages. Accordingly, they argued that the medical education community should be open to social media innovations and make the necessary arrangements for access [8].

Sneyd et al. investigated the problems experienced by anesthesia residents and specialists in 6 continents during the COVID-19 pandemic period: decreased case-based training, subspecialty experience, and supervised procedures have been shown to impair learning, and canceled training activities, postponed exams, and changed rotations disrupt training [3]. In this period, it was revealed that education continued, albeit partially, with the development and usability of e-learning.

Anwar et al. in their correspondence letter considered that new skills in telemedicine, committee participation, simulation of pandemic-specific skills and communication, and even professional use of social media have been assimilated by anesthesia residents. He hoped that the training programs were effective in the COVID-19 pandemic and could guide the future of Anesthesiology education [1].

Purdy et al. in their survey study, investigated the use of online education resources by emergency medicine residents. The data show that the use of online education resources has increased and its role in education is important in the future [9].

Renew et al. provided important information about the role of social media platforms in the postgraduate medical education of anesthesiologists in the survey study they conducted with anesthesia residents [10].

Katz et al.'s review considered that social media also plays an important role in medical education. They point out that the curriculum for medical education is not suitable for this, and it is appropriate to adapt the necessary equipment and training and the use of social media [6].

This study has several limitations. To summarize briefly, an important shortcoming may be that the author did not take into account the changes in the mood of the participants during the pandemic. It is reasonable to assume that some of the participants' moods may be the reason for their statements that they do not follow scientific meetings or social media. It may have influenced some of the participants' negative answer option choices.

Conclusion

The use of social media has many uses in the community, such as health news, health education, helping medical education curricula, and easier and unhindered access to experience and information during the residency period. The beneficial use of social media in this and many other areas that we have not yet thought of cannot be ignored. However, there are also disadvantages due to information pollution, security problems, difficulty of access and necessary equipment. During the pandemic period, it has been observed that the use of social media has increased rapidly, especially in the health sector, and many people were able to access the necessary information through social media in this period. During the pandemic period, medical education and training programs through social media have enabled many people who are against social media to get closer to social media and use it effectively. It can be ensured that this already habitual method will become part of medical and assistant education programs in the future. For this reason, we expect this method to be encountered more frequently and effectively in the coming years, with adequate research and development studies by those responsible for the training programs.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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